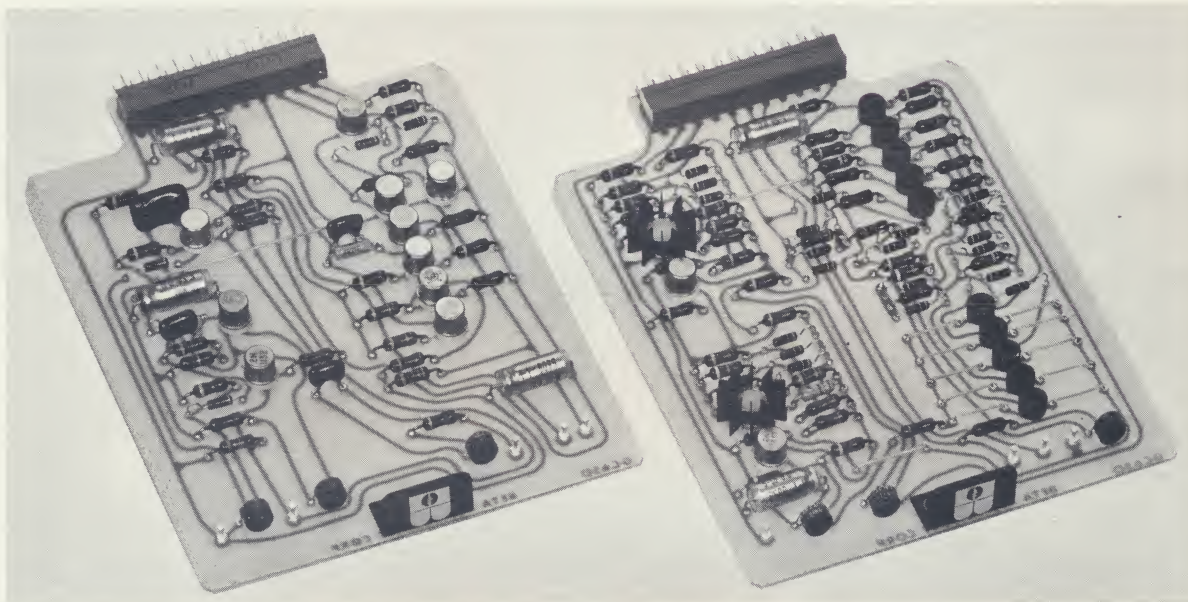




Engineering Data

LINEARITY CORRECTION CIRCUIT

Model LC916/918



DESCRIPTION:

The Model-LC916/918 Linearity Correction Circuit consists of two all-silicon solid-state units featuring plug-in convenience and low cost. It is designed for application in any electromagnetic cathode ray tube deflection system where a highly linear, undistorted display is desired.

In an electromagnetic deflection system, the sine of the electron beam deflection angle is proportional to the yoke current. On a flat-screen CRT, however, spot location is proportional to the tangent of the deflection angle, resulting in distortion throughout the scan format, commonly known as "pin-cushion" distortion. To achieve a linear display the deflection current must be corrected according to the formula:

$$I_{corr} = I_{unc} / (p^2 \tan^2 A + q^2 \tan^2 B + 1)^{1/2}$$

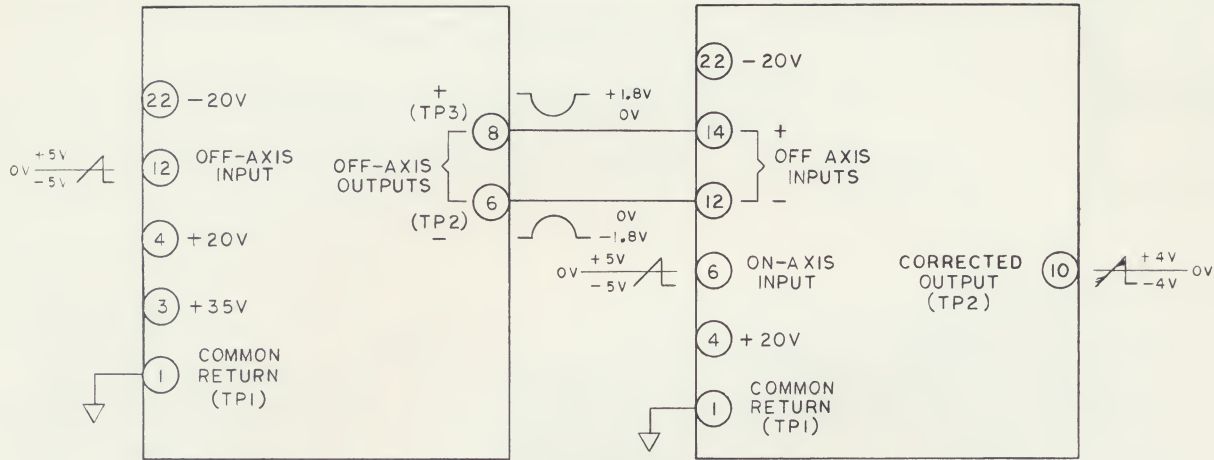
where $p = I_{unc} / I_{unc} \text{ (max)}$ in x - direction
 $q = I_{unc} / I_{unc} \text{ (max)}$ in y - direction
 $A = \text{maximum x-deflection angle}$
 $B = \text{maximum y-deflection angle}$

The Model-LC916/918 is designed to be compatibly coupled to the output of standard linear sweep generators manufactured by Beta. It shapes the deflection voltages according to the correction formula, and can be used to drive any of the standard Beta deflection amplifiers. It is direct-coupled throughout, making it useful in random point-plotting systems as well as raster and other scan formats. For applications which require only on-axis correction, such as line scans, specify Model LC916 only. Potentiometers are accessible on each unit to permit adjustment of waveforms and biases for optimum performance.

Beta Instrument Corporation

LC918

LC916



SPECIFICATIONS

INPUTS

ON-AXIS DEFLECTION VOLTAGE
Amplitude
Impedance

±5 volts
50K, minimum

OFF-AXIS DEFLECTION VOLTAGE
Amplitude
Impedance

±5 volts
5K, minimum

POWER
+20 vdc @ 100 ma
-20 vdc @ 100 ma
+35 vdc @ 20 ma

OUTPUTS

DEFLECTION VOLTAGE
Amplitude
Impedance

±4 volts
100 ohms

OPERATING TEMPERATURE

0 to 40°C

ADJUSTMENTS

ON-AXIS OUTPUT SLOPE
OFF-AXIS POSITIVE SLOPE
OFF-AXIS NEGATIVE SLOPE
OFF-AXIS POSITIVE OFFSET
OFF-AXIS NEGATIVE OFFSET
ON-AXIS CORRECTION BREAK POINTS

Recessed screwdriver
adjustable potentiometers
accessible at
rear of unit.

Ten potentiometers
preset by Manufacturer.

ACCURACY

±.5%

SETTLING TIME

5 usec maximum for full
output swing of ±4 volts
to .1% of final value.

MAXIMUM DEFLECTION ANGLE

42° for maximum ON
AND OFF AXIS input
voltage. For angles
less than 42°, de-
crease input volt-
ages proportionally.

PHYSICAL

CONNECTOR (each unit)
Plug
Receptacle

Elco 00-7022-023-000-001
Elco 00-7008-023-163-001
(supplied with unit)

DIMENSIONS (each unit)

6 3/4" L x 5" W

MINIMUM SPACING BETWEEN CONNECTORS

.700 inches

WEIGHT (each unit)

4 ounces

MATERIALS
Semiconductors
Resistors
Printed circuit card

silicon
metal film
G-10 glass epoxy

Beta Instrument Corporation

377 ELLIOT STREET, NEWTON UPPER FALLS, MASSACHUSETTS / 02164 / AREA CODE 617 / TELEPHONE 969-6510